

CLAIMS

1. A process for pasteurising microbial cells, the process comprising heating the cells at a temperature comprising from 40°C to 70°C in no more than 30 minutes or at a rate greater than 0.5°C/minute.
2. A process for pasteurising microbial cells that comprises three stages, namely a (first) heating stage, a (second) plateau stage (at which the cells are maintained at a constant temperature) and a (third) cooling stage.
3. A process for pasteurising microbial cells, the process comprising heating the cells using a pasteurisation protocol so that the area under the time (minutes) versus temperature (°C) graph is below 13,000°C.minute.
4. A process for pasteurising microbial cells, the process comprising heating the cells and so maintaining the cells at an elevated temperature (T, °C) for a time (t, minutes) at a plateau stage wherein the product tT is from 140 to 100,800°C.minute.
5. A process according to claim 2 or 4 wherein:
 - (a) the plateau is the maximum temperature;
 - (b) the shape of the pasteurisation protocol on a time (t) vs. temperature (T) graph is a trapezium;
 - (c) the heating and/or cooling is linear; and/or
 - (d) the cells are heated at a temperature starting below 40°C and/or are heated to a temperature above 70°C; and/or
 - (e) the cells comprise, or produce, a PUFA or (optionally PUFA-containing) microbial oil.
6. A process according to any preceding claim wherein the microbial cells are heated from 40°C to 70°C in no more than 15 minutes and/or the cells are heated at a rate of at least 0.6 or 1.0°C/minute.
7. A process according to any preceding claim wherein:
 - (a) the microbial cells are heated at a rate of at least 2°C/minute;
 - (b) the pasteurisation (or plateau) temperature is from 70 to 100°C, optimally from 70 to 85°C;
 - (c) the cells are cooled at a rate of at least -0.6 or -1.6°C/minute; and/or

- (d) the area under the time (minutes) versus temperature ($^{\circ}\text{C}$) graph is below 10,000 or 8,000 $^{\circ}\text{C}.\text{minute}$.

8. A process for obtaining a PUFA or microbial oil from microbial cells, the process comprising pasteurising the cells according to any preceding claim and extracting or isolating a PUFA or a microbial oil from the pasteurised cells.

9. A microbial oil that has a triglyceride content of at least 90%, a peroxide value (POV) of less than 1.5 (or 1.0) and/or an anisidine value (AnV) of less than 15, optionally less than 12.

10. An oil according to claim 9 wherein:

- (a) the PUFA comprises a C_{18} , C_{20} or C_{22} Ω -3 or Ω -6 fatty acid;
- (b) the PUFA content is at least 40%;
- (c) the PUFA comprises arachidonic acid (ARA), eicosapentaenoic acid (EPA) and/or docosahexaenoic acid (DHA); and/or
- (d) the oil is a crude or unrefined oil.